

Appl. No. **TO BE ASSIGNED**

Amdt. dated May 16, 2005

Preliminary Amendment

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended) A three-dimensionally networked silica composed of silica particles of ~~0 to 100 nm~~ combining by bridge chains of aliphatic, aromatic, polyimine, peptide, and polyether groups.

Claims 2 - 3. (canceled)

Claim 4. (original) A three-dimensionally networked silica according to claim 1, wherein the combining reactions are carried out in toluene, xylene, octane, butanol as solvents at 40 to 150°C with refluxing.

Claim 5. (original) A three-dimensionally networked silica according to claim 1, wherein silica particles are combined by reacting silane-coupled silica particles coupled with trialkoxy silane having an amine substituent and another silica particles coupled with trialkoxy silane having a glycidyl substituent.

Claim 6. (original) A three-dimensionally networked silica according to claim 5, wherein the reacting pairs are amine and chloride, glycidyl and mercapto, glycidyl and hydroxyl, and amine and mercapto groups.

Claim 7. (original) A three-dimensionally networked silica according to claim 5, wherein the coupling reactions between silica particles and silane and between silane-coupled silica particles are carried out in toluene by refluxing.

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Claim 8. (original) A three-dimensionally networked silica according to claim 5, wherein the silane having an amine substituent is 3-aminopropyltriethoxy silane and the silane having a glycidyl substituent is 3-glycidoxypropyltrimethoxy silane.

Claim 9. (original) A three-dimensionally networked silica according to claim 5, wherein the silane having an amine substituent is 3-aminopropyltriethoxy silane and the silane having a chloride substituent is 3-chloropropyltrimethoxy silane.

Claim 10. (original) A three-dimensionally networked silica according to claim 5, wherein the silane having a mercapto substituent is 3-mercaptopropyltrimethoxy silane and the silane having a chloride substituent is 3-chloropropyltrimethoxy silane.

Claim 11. (original) A three-dimensionally networked silica according to claim 5, wherein the silane having a mercapto substituent is 3-mercaptopropyltrimethoxy silane and the silane having a glycidyl substituent is 3-glycidyloxypropyltrimethoxy silane.

Claim 12. (original) A three-dimensionally networked silica according to claim 1, wherein silica particles are combined by reacting silane-coupled silica particles with connecting materials with multifunctional groups on their ends in toluene by refluxing.

Claim 13. (currently amended) A three-dimensionally networked silica according to claim 12, wherein the connecting materials are diamines, dichlorides, diisocyanates and dicarboxylic acids with methylene chains of C_6-C_{100} .

Claim 14. (currently amended) A three-dimensionally networked silica according to claim 12, wherein silica particles are combined by reacting silica particles with dichlorides having methylene chains of C_6-C_{100} in toluene by refluxing.

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Claim 15. (original) A three-dimensionally networked silica according to claim 12, wherein connecting materials are diisocyanato having methylene chains of $C_6 - C_{100}$.

Claim 16. (currently amended) A three-dimensionally networked silica according to claim 12, wherein the silane having an amine substituent is 3-aminopropyltriethoxy silane and the connecting material is dichloro, dibromo or diiodoalkane ~~with the methylene skeletal of $C_6 - C_{100}$~~ .

Claim 17. (currently amended) A three-dimensionally networked silica according to claim 12, wherein the silane having an mercapto substituent is 3-mercaptopropyltrimethoxy silane and the connecting material is dichloro, dibromo or diiodoalkane ~~with the methylene skeletal of $C_6 - C_{40}$~~ .

Claim 18. (currently amended) A three-dimensionally networked silica according to claim 12, wherein the silane having a glycidyl substituent is 3-glycidyloxypropyltrimethoxy silane and the connecting material is diamino or diisocyanato alkane ~~with the methylene skeletal of $C_6 - C_{40}$~~ .

Claim 19. (currently amended) A three-dimensionally networked silica according to claim 12, wherein the silane having a glycidyl substituent is 3-glycidyloxypropyltrimethoxy silane and the connecting material is polyethyleneimine ~~with molecular weight 600-30,000~~.

Claim 20. (currently amended) A three-dimensionally networked silica according to claim 19, wherein the skeletal of connecting materials is polyether ~~of $C_6 - C_{30}$~~ .

Claim 21. (currently amended) A three-dimensionally networked silica according to claim 1, wherein silica particles are combined by ~~reacting, silica particles are directly reacting~~

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reacting silica particles directly with multifunctional connecting materials in toluene by refluxing .

Claim 22. (currently amended) A three-dimensionally networked silica according to claim 21, wherein the multifunctional connecting materials are dichlorides ~~with the methylene skeletal of~~ C_6-C_{40} .

Claim 23. (currently amended) A three-dimensionally networked silica according to claim 21, wherein the multithnctional connecting materials are diisocyanates ~~with the methylene skeletal of~~ C_6-C_{40} .

Claim 24. (original) A three-dimensionally networked silica according to claim 5, wherein the non- reacted amine groups are inactivated by reacting with chloroalkane with C_4-C_{12} in toluene with refluxing .

Claim 25. (original) A three-dimensionally networked silica according to claim 5, wherein the non- reacted amine groups are inactivated by reacting with monochloro or dichloro acetic acid.

Claim 26. (original) A three-dimensionally networked silica according to claim 5, wherein the non- reacted glycidyl groups are inactivated by reacting with aminoalkane with C_4-C_{12} in toluene with refluxing.

Claim 27. (original) A three-dimensionally networked silica according to claim 6, wherein the non- reacted chloride groups are inactivated by reacting with aminoalkane with C_4-C_{12} in toluene with refluxing .

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Claim 28. (currently amended) A three-dimensionally networked silica according to claim 1, which is an additive ~~with 5 to 100 phr~~ to reinforce tensile and mechanical properties of rubber compounds ~~composed of~~ containing zinc oxide, stearic acid, curative accelerator, activator, processing oil, stabilizers and retarder.

Claim 29. (original) A three-dimensionally networked silica according to claim 28, which is an additive for rubber compounds composed of diene rubber, natural rubber, butadiene rubber, styrene-butadiene rubber and butyl rubber as base rubber.